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ABSTRACT

Significant progress has been made in designing beginning reading instruction for young children with reading disabilities (RD), but much less is known about children with RD in the intermediate grades who read very poorly despite several years of instruction and exposure to print. The aim of this research was to compare the influence of text difficulty (reading-ability matched or grade-level matched) on the growth of student's reading comprehension over the course of 18 weeks of one-to-one tutoring. Forty-six third through fifth grade poor readers, including twenty-five with high incidence disabilities, were randomly assigned to one of two tutoring conditions, or to a control condition. Following tutoring, significant differences favored tutored children in all measured reading skills; however, the only significant difference between treatments was in reading fluency, which favored children who were tutored with text matched to their current reading ability. A subanalysis of the outcomes of the lowest skilled readers found differences favoring children in the reading-ability matched text in word identification and oral reading, as well as word attack. These findings have implications for decisions about how "special" a child's reading instruction should be to predict adequate growth. Contains 32 references, 2 tables, and 2 figures of data. (Author/RS)

The Influence of Text Difficulty on Children's Reading Comprehension Growth

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Abstract

Significant progress has been made in designing beginning reading instruction for *young* children with reading disabilities (RD), but much less is known about children with RD in the *intermediate grades* who read very poorly despite several years of instruction and exposure to print. The aim of this research was to compare the influence of text difficulty (reading-ability matched or grade-level matched) on the growth of student's reading comprehension over the course of 18 weeks of one-to-one tutoring. Forty-six third through fifth grade poor readers, including 25 with high incidence disabilities, were randomly assigned to one of two tutoring conditions, or to a control condition. Following tutoring, significant differences favored tutored children in all measured reading skills, however, the only significant difference between treatments was in reading fluency, which favored children who were tutored with text matched to their current reading-ability. A subanalysis of the outcomes of the lowest skilled readers found differences favoring children in the reading-ability matched text in word identification and oral reading, as well as word attack. These findings have implications for decisions about how "special" a child's reading instruction should be to predict adequate growth.

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Instruction to improve reading comprehension for children with reading difficulties (RD) in Grades 3-5 tends to reflect one of two opposing perspectives. One perspective proposes that students with RD require instruction that builds decoding, word analysis, fluency, and reading comprehension strategies, skills best developed by using developmentally appropriate materials (books and stories written at or just above a child's current reading level) (Dole, Brown, & Trathen, 1996; Ehri, 1992; Share & Stanovich, 1995). The opposing perspective assumes that to succeed in general education classrooms, comprehension instruction should make grade level materials accessible to students with RD. This approach also stresses comprehension strategies and word analysis, and provides extensive reading opportunities, but uses the same materials as general education classrooms (Guthrie, McGough, Bennett, & Rice, 1996). The first approach is more prevalent in remedial settings, but more difficult to implement in a mainstream classroom; the second approach would fit in more easily, but its effects have not been evaluated.

Reading comprehension for older poor readers encompasses problems peculiar to this population (Ellis, 1996). The increasing content demands of the general education curriculum require expanded vocabulary, processing and use of complex sentence structures, and application of strategies for selecting and retaining key ideas (Graham & Harris, 1992; Willson & Rupley, 1997). But the materials these children are able to read independently are written on the first or second grade level, and these materials use simple structures and primary-level vocabulary, so that children may learn to read the words, but lack opportunities to learn age-appropriate comprehension skills (McGill-Franzen & Allington, 1991). Although age appropriate materials provide the appropriate comprehension stimulation, very poor readers may be unable to read printed words at this high level, which sends remedial teachers back to teaching word level strategies in order to increase developmental reading skill.

The dilemma is this: If teachers use reading materials at the student's current reading level, children may become better decoders, but lose ground in acquiring the grade-appropriate vocabulary and complex sentence structures essential for building reading and listening comprehension (Carver & Leibert, 1995). If teachers use reading materials from grade appropriate levels, they risk "exposure" to content without developing the key reading skills likely to increase a student's overall ability to read independently (Rupley, Willson, & Nichols, 1998; Williams, 1985). It is important that we learn what can be gained from each horn of this dilemma so that we can learn how best to teach reading comprehension to very poor readers in inclusive intermediate grade classrooms.

Resolving the Conflict

On one side of the controversy, remedial specialists typically conduct developmental reading instruction (without incorporating new findings from research with younger students), even though little research with older elementary age students exists that demonstrates these students' comprehension profits from groundwork in developmental reading. On the other side of the controversy, advocates of inclusion prefer that students use the general education curriculum and materials, with support provided, even though very little research describes the kind of support that would help children with severe RD improve their reading comprehension in general education settings (McGill-Franzen & Allington, 1991).

Compounding the confusion, older students with RD who have had several years of schooling may have reading difficulties in one aspect of reading (e.g., reading fluency or comprehending connected text), or in some constellation of associated skills (Spear-Swerling & Sternberg, 1994). Thus, it seemed unlikely that a "one-size-fits-all" approach would be uniformly powerful for most older readers.

To test these issues, we designed a lesson structure that provided instruction on reading skills identified through research as problematic for older poor readers (Dole, Brown, & Trathen, 1996; Rack, Snowling, & Olson, 1992), and critical for stimulating initial reading acquisition in younger readers (Share & Stanovich, 1995). Phonological blending and segmenting were integrated with opportunities to blend and segment printed words to ensure understanding of the

alphabetic principle. Adams (1990), Perfetti (1991), and Ehri (1992) have eloquently built the case for word analysis instruction, and packages of phonological awareness, word analysis and reading connected text have been studied with *young* readers (e.g., Foorman et al., 1998; Heibert et al., 1994; Vellutino et al., 1996).

Reading comprehension has been studied extensively with older students, and although comprehension relies on students being able to translate print into meaningful words, this act of translation is not sufficient to ensure adequate reading comprehension. Willson and Rupley (1997) found that the components of comprehension change with reading development. In Grades 1 and 2, for example, phonemic knowledge contributes heavily to reading comprehension. By Grades 3 and 4, background knowledge begins to contribute to comprehension, and by Grade 5, strategy knowledge of how to engage text virtually subsumes other contributing variables.

For students whose receptive vocabulary is high, improving fluency improves reading comprehension (Dowhower, 1987; Shany & Biemiller, 1995). For students with poorly developed vocabulary, both reading and listening comprehension can be improved by developing schema around a story topic or events (McKeown, Beck, Sinatra, & Loxterman, 1992), by teaching students to monitor their own comprehension (Ellis, 1996), and to relate reading material to other sources (Perez & Torres-Guzman, 1992). Therefore, all lessons included instruction in strategic reading, regardless of level of text difficulty.

The Developmental approach to reading instruction (DEV) is compatible with mainstream primary grades, as it combines features of beginning reading instruction typically introduced in the early grades. The targets of our reading treatments, however, were 3rd, 4th, and 5th grade students. The Classroom-matched approach (CM) built an alternative that was philosophically compatible with the aims of intermediate inclusion classrooms: that uses the same materials, that strives to meet the same goals, and that prepares students to be better participators in general class activities.

This study was designed to compare the effect of using reading level matched (DEV) or grade level matched (CM) text materials during one-to-one instruction for students with reading difficulties in the intermediate grades. The aims of this research were to (1) compare the influence of text difficulty on the growth of students' reading ability during 18 weeks of 1:1 tutoring, and (2) consider differential effects for students with the most severe RD.

Method

Participants

School principals and teachers from three schools recommended 64 third through fifth grade students as potential participants in this research. The proportion of students across schools who qualified for free or reduced lunch was 90%, 65%, and 22%, respectively. In the two public schools, which contributed most of the participating students, fewer than 10% of the parents reported any college education; in the third, most families included one or more parents with college experience.

We dropped 16 students from consideration because their total reading scores were above a second grade level, and 2 children moved before the completion of the study, leaving 46 participants (32 boys and 14 girls). Twenty of the students were African American, and 26 European American. Twelve students were in third grade, 28 in fourth, and 6 in fifth grade (mean age in December = 9.96 years, SD .82). Fourteen of the students had been retained in grade at least one year. Twenty-five of the students received special education services under the categories of learning disability (n = 20), mild mental retardation (n = 3), or serious emotional disturbance (n = 2).

Measures

Receptive vocabulary was measured once (Peabody Picture Vocabulary Test-Third Edition; Dunn, Dunn, & Dunn, 1997), segmenting twice, and reading ability three times, with pretests conducted one week prior to beginning the tutoring, midway tests in the ninth week, and posttests

following the 18th week. All measures were individually administered. Pretests and midway tests were conducted by the authors, and posttests were conducted by trained testers hired to collect data across several university reading studies. These testers were not affiliated with the study and were blind to the treatment conditions. Means and standard deviations from each time of testing are reported by group in Table 1.

Segmenting. During the pre- and posttest battery, we used the segmenting test of Kaminski and Good (1996), in which children listened to a 3-phoneme word, and were asked to say the sounds they heard in each word. The ten items were scored by the number of phonemes correctly identified in each word in the first minute of administration.

Reading measures. We used three subtests of the Woodcock Reading Mastery Tests (WRMT: Woodcock, 1987) to assess reading progress. The Word Identification task required students to identify words in isolation, the Word Attack subtest required students to apply phonic and structural analysis to pronounce pseudowords, and the Passage Comprehension subtest required students to silently read a short passage with a missing word signaled with a blank space and to supply a word that made sense in that space. We used all three subtests at the beginning and end of treatment, and the Word Identification subtest at the midpoint.

The Analytical Reading Inventory (Woods & Moe, 1981) was administered at all three testing points to assess students' word recognition and passage comprehension skills. This informal reading inventory consists of a series of graded word lists and passages from primer through Grade 9. The three equivalent forms allowed for different words and passages to be used in November, February, and May. Students were first asked to read increasingly difficult word lists. We discontinued the word list subtest when students missed 20% of the words at a particular level. Next, students were asked to read increasingly difficult passages, beginning at the grade level at which they could read at least 85% of words on the word list correctly. Participants read orally while the examiner noted errors and miscues. Following oral reading, the examiner asked passage dependent comprehension questions that tapped a range of comprehension types, from literal to inferential. When students answered 2/3 or more of the questions correctly, they were given the next higher passage. The scores in Table 1 reflect the highest level passage at which students answered at least 2/3 of the questions correctly.

We collected second grade oral reading fluency measures in November, because we wanted to select participants who were not yet fluent on second grade level text. In February, we used second and third grade passages, and in May, we used second and fourth grade passages. In addition to these measures, we collected weekly fluency data drawn from each child's current reading material, using a passage the child had not yet read. These data were plotted to create individual profiles of performance. Since the difficulty of the weekly passages differed across subjects, we report only performance on the passages common to all of our participants.

Procedure

We administered pretests in November. Because our students were selected across three grade levels, we used performance measures as selection criteria for participation. Students who read more than 80 words per minute on beginning second grade text, or who scored higher than Grade Equivalent 2.2 on the reading composite score from the WRMT were dropped from the subject pool. Students were blocked by school and general class teacher, and then randomly assigned to one of the two treatments, or to a control condition.

Experimental Treatments

Children in both tutoring conditions received 30 minutes of one-to-one instruction provided by trained teachers 4 days per week for 18 weeks. The components of the lessons included the following activities: (1) phonological blending and segmenting, (2) word study through phonic generalizations and orthographic patterns, (3) reading connected text, (4) fluency building activities, (5) comprehension strategies, and (6) spelling or writing integrated with the day's reading. Approximate time allocations for each component were: 5 minutes for components 1 and 2, 20 minutes for components 3, 4, and 5, and 5 minutes for spelling or writing.

The Developmental Approach (DEV). In the developmental approach, we selected reading material that was in the student's instructional range (i.e., 0.2-0.5 grade level above the student's current reading level). Most of these lessons were constructed using high interest/low vocabulary books, such as the Tom and Ricky Mystery Series (Wright, 1982), the Four Corners Series (Mullin, 1997), and the Brains and Parker McGoohan series (Stine & Stine, 1993), which were coded for readability level. Lessons for two students who read below a first grade level were constructed from the decodable minibooks of Open Court (1995) for the first 10 weeks, followed by stories from the second half of Reading Mastery I/II Fast Cycle (Engelmann & Bruner, 1995). The readability levels of DEV materials based on the Fry Readability Formula (Fry, 1977) ranged from mid-first through late-third grade. Materials were then adjusted (usually to a higher level) based on weekly fluency timings, and percent correct on comprehension activities. In general, once a student achieved 90-95% accuracy at a particular level, children were given more difficult reading material. The level of material was changed an average of 3.4 times per student across the 18 weeks.

The Classroom-Matched Approach (CM). In this tutoring treatment, the general class reading materials provided the vehicle for instruction; the words studied contained phonic generalizations and orthographic patterns of words from those general class materials; and supported comprehension activities also used these materials. To generate classroom-matched tutoring lessons, we gathered materials from each child's teacher a week prior to her using them in class. We analyzed word patterns and new vocabulary, and reflected on materials previously studied to integrate context, vocabulary, and information with prior experiences. Examples of these materials include novels, such as The Mouse and the Motorcycle (Cleary), The Other Side of the Mountain, Stone Fox, and Skinny Bones, and 3rd, 4th, and 5th Grade basal readers and literature series from Silver, Burdett, and Ginn (1991) and Harcourt Brace and Company (1993). The readability levels of the CM materials (Fry, 1977) ranged from third through seventh grade. Reading materials were changed an average of 2.5 times, keeping pace with the selection of materials by the general education teacher.

Fidelity to treatment. Four graduate students in special education and one trained substitute teacher conducted the reading lessons, each teacher working with 2-6 children, evenly divided between treatments to minimize teacher effects. Two or three observations of each child during tutoring were conducted by the first and second author during the first two weeks of treatment. Thereafter, observations occurred approximately every three weeks. All teachers kept a daily log of reading progress for each child that included attendance, pages read, areas of difficulty, reading fluency, and comprehension success. These logs were examined weekly by the instructional team and used to determine the reading materials for children in the DEV and adjustments in focus (e.g., more time on rereading text, more frequent opportunities for summarization, or particular word patterns) for children in both treatments. Reading lessons for each child were tape recorded. At least three recorded lessons for each child were transcribed and compared to the scripted lessons. In all cases, the transcribed lessons closely matched the written records and lesson plans.

Background reading instruction. All of the students in the study received reading instruction from their general class or special education teacher in addition to the tutoring provided by this study. The general class instruction in one school relied on novels that were read by the entire class, or by groups of students within the class. In the second school, instructional materials were divided between the school-adopted HBJ Treasury of Literature (HBJ, 1993) and class sets of novels. In the third school, Success for All (SFA) had been adopted using Silver Burdett and Ginn (1991), and was monitored by SFA trainers from Johns Hopkins University. In this school, two children in the control group were given 30 minutes of daily tutoring by SFA school personnel. General class reading instruction ranged from 60-90 minutes per day. Although we exerted no control over the background reading program, blocking by teacher within school prior to assigning students to treatment helped to equalize the effects of this variation across groups.

Results

Following random assignment, chi square statistics indicated no significant differences in assignment for gender or ethnicity ($\chi 2 = 0.157$ and 0.000, respectively). MANOVA by treatment revealed no significant differences for pretest scores prior to beginning the interventions. Table 1 shows descriptive statistics for students by group assignment.

Treatment Effects

We conducted time (pre-post) by treatment (DEV, CM, or Control) repeated measures ANOVA for each of the outcome measures. The main effect for time was significant on all comparisons, indicating that children across conditions grew significantly in reading skills during the 18 weeks of this study. The interaction terms were significant ($p < .05$) for the Word Identification ($F_{(4,84)} = 5.029$), Word Attack ($F_{(2, 43)} = 10.165$), and Passage Comprehension ($F_{(2, 43)} = 13.606$) subtests of the WRMT, for oral reading fluency of second grade text ($F_{(4,84)} = 6.759$), and the Analytic Reading Inventory ($F_{(4,84)} = 9.556$). In these comparisons, the treated children made significantly stronger gains than those in the control condition. Follow up comparisons of gains using Tukey's HSD revealed no significant outcome differences *between* tutoring procedures except for reading fluency on second grade level text ($F_{(2,43)} = 15.673$), which favored children in the DEV.

Treatment Comparison by Entering Fluency Level

Our second research question considered whether the treatments would be differentially effective for children with the most severe reading difficulties. Children in the Control Group were excluded from these analyses. We had selected participants based on poor performance in oral reading fluency. A dot plot of reading fluency in November (see Figure 1) shows a break point around 50 words per minute that divides our participants in the treatments into especially low and more fluent readers on beginning-second-grade text. Due to the power lost by decreasing numbers of children in each condition, we conducted separate analyses for children with lower or higher levels of reading fluency.

Figure 1

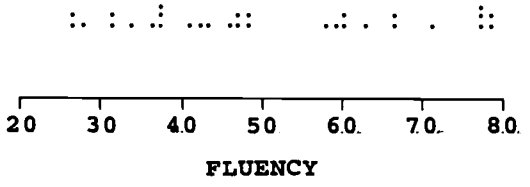
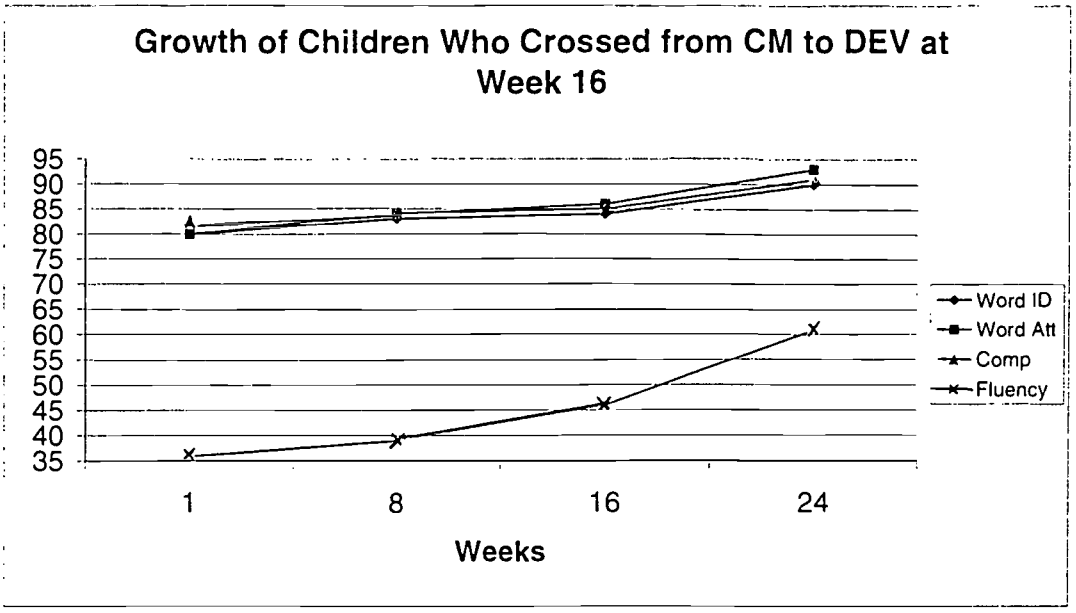


Table 2 shows descriptive statistics for the treated children by fluency level and group. For children with the lowest fluency in November, MANOVA of posttest performance was significant (Wilks' lambda = .080, $p < .05$) favoring children in the DEV. MANOVA on outcomes for children with higher fluency was not significant (Wilks' lambda = .468, $p = .683$). To further explore the possibility of differential response to treatments, we crossed treatments for the 7 lowest skilled children who had received the CM treatment, and provided 8 additional weeks of tutoring using DEV materials. Five of the 7 children made more growth in reading fluency and comprehension in these 8 weeks than they had in the previous 8 weeks of class-matched tutoring (Fig. 2). Because of the small sample size, these results are only suggestive.

Figure 2



Discussion

Analysis of the difficulty level of texts used across treatments showed that materials used in general education classrooms ranged from 2 to 4 years above the reading levels of our participants. Despite this discrepancy, nearly half of the children tutored in these difficult materials (CM) made significant gains, given specialized tutoring. Prior to this study, none of these children had made a year's growth in reading in a year's time, and yet many of the tutored children made that large a gain in 18 weeks.

Accounting for Significant Gains

Improved decoding. Across both treatments, children made significant pre-to-posttest gains in standard scores in Word Identification and Word Attack, whereas children in the Control group did not. Improvement at the level of word reading may lead to improvement in comprehension among children whose reading disability is related to difficulty reading individual words. Shankweiler et al. (1999) found scores in reading comprehension to be strongly related to differences in word reading and decoding.

Improved fluency. Improvement in word level reading combined with increased rate of reading of reading connected text may have contributed to comprehension gains. Dowhower (1987) studied repeated reading with disfluent second graders, and found that children gained in oral reading fluency and comprehension, with a strong cumulative practice effect, such that transfer to unread portions of text improved across the 7 weeks of the study. She offers the hypothesis that the improvement over time may be due to practice reading material at the same level, even though the transfer passages had not been practiced.

Improved comprehension. All of our treated students were required to draw inferences and make predictions daily about their reading. They were asked to retell events from the previous day's reading before continuing. Children who had difficulty with literal comprehension were asked to reiterate details frequently as they read. We asked some children to rephrase each sentence until they became able to recall and interpret paragraphs and longer passages. Children who easily recalled what they had read were asked primarily inferential questions, and to generate main idea statements and summaries in their writing. Comprehension skills, however, were more difficult to teach in very easy materials because the child was usually familiar with the meanings words, the sentences were short and unelaborated, and the content of these books was sometimes too simplistic to be useful for higher order comprehension activities, such as predicting events

based on evidence from the story so far. Although our Results show specific areas of improvement, the study was not designed to isolate causal factors in improved comprehension outside of the independent variable of text difficulty.

Crossover Changes in Performance

Over half of the children in this study were eligible for special services, however, this group was quite varied because we included students across categories of high incidence disabilities. Among the less fluent readers (Fig. 1) were 4 students who were not eligible for special education services. Conversely, two students in special education (one with LD and one with SED) were among the relatively more fluent readers. The 7 students in the 8-week Crossover had all been diagnosed with disabilities and were among those with very poor fluency. The trends shown in Figure 2 must be interpreted cautiously. First, the children in the crossover treatment did not have a proper control group. Rather, we used these children as their own controls by examining progress under varying conditions. Crossing the slowest growing children in the CM to the DEV at Week 16 also created problems with data interpretation. We tested these children at Week 16 to generate the equal time intervals of 8 weeks each, and again at Week 18 to include their scores with the outcomes of the CM treatment. Because 5 of the 7 children improved their rate of progress in the DEV, their CM outcomes at 18 weeks may be slightly inflated, which could mask potential differences between the treatments.

Limitations

Sample size. Although we began the study with adequate power to detect moderate effects, the numbers shrank with the subanalyses concerning differential treatment effects. The cell sizes were too small to detect aptitude by treatment interactions, if any existed.

General class, special education, and remedial services. All three schools offered help to children who needed to improve their reading performance, but the type and quality of service differed by school and grade level. Although we tried to minimize these effects on outcomes by assigning children randomly by class, in a few cases we were unable to do so when trios by teacher were not available, or when children left the study due to family circumstances.

Educational Importance

Observations of general class reading instruction indicate a disinclination to group students for instruction in the intermediate grades, and minimal emphasis on strategic reading comprehension (Pressley, Wharton-McDonald, Mistretta-Hampston, & Echevarria, 1998). These trends are troubling, because children whose reading skills and fluency were especially low made little progress in the treatment that used classroom-matched materials. Moreover, the significant gains among students in the control condition were mainly attributable to the relatively higher-skilled children. Further exploration of the initial discrepancy between a child's reading ability and classroom-level materials may help educators to make better decisions about how "special" a child's instruction needs to be to predict adequate growth.

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Table 1

Descriptive Statistics by Treatment.

	Developmental	Classroom-Matched	Control
	n = 15	n = 16	n = 15
	Mean (SD)	Mean (SD)	Mean (SD)
December			
PPVT	96.47 (16.15)	95.06 (16.93)	95.67 (19.12)
Segmenting	12.00(4.77)	14.06 (5.39)	13.33 (5.22)
Word Identification Raw	44.00 (9.78)	45.44 (9.64)	45.13 (10.93)
Word Attack Raw	10.20 (4.77)	10.38 (6.10)	11.80 (6.61)
Passage ComprehensionR	21.93 (6.66)	23.38 (6.95)	20.67 (7.91)
Word Identification SS	81.40 (7.43)	82.66 (5.95)	83.27 (7.16)
Word Attack SS	81.40 (3.66)	82.38 (4.56)	82.93 (5.06)
Passage ComprehensionS	82.67 (7.33)	83.88 (5.39)	82.40 (7.46)
Reading Fluency (Gr 2.0)	49.13 (15.99)	53.19 (18.52)	52.20 (16.66)
ARI Comprehension (GE)	2.03 (0.81)	1.93 (0.81)	2.21 (0.88)
February			
Word Identification Raw	48.00 (10.13)	49.50 (10.42)	46.53 (10.80)
Word Identification SS	85.07 (7.03)	87.56 (7.29)	83.60 (7.16)
Reading Fluency (Gr 2)	72.60 (23.28)	68.06 (24.99)	60.80 (20.26)
Reading Fluency (Gr 3)	57.53 (27.59)	54.44 (26.45)	51.67 (22.29)
ARI Comprehension	2.88 (1.01)	2.60 (0.99)	2.36 (0.84)
May			
Segmenting	24.20(4.25)	24.63 (3.50)	18.00 (5.31)
Word Identification Raw	55.67 (8.53)	55.19 (10.28)	49.40 (11.13)
Word Attack Raw	22.07 (6.66)	18.13 (6.54)	15.47 (6.45)
Passage ComprehensionR	31.33 (7.09)	30.88 (6.57)	25.33 (7.62)
Word Identification SS	89.07 (7.30)	89.75 (6.88)	82.20 (8.43)
Word Attack SS	94.07 (6.07)	92.00 (4.69)	86.60 (7.20
Passage Comprehension S	91.67 (8.02)	93.19 (7.65)	82.40 (9.28)
Reading Fluency (Gr 2)	84.47 (24.66)	72.63 (31.77)	61.07 (21.25)
Reading Fluency (Gr 4)	58.15 (30.04)	55.29 (27.10)	44.69 (17.29)
ARI Comprehension	3.75 (1.35)	3.56 (1.30)	2.49 (0.92)
PIAT Spelling	87.77 (8.94)	90.79 (7.52)	82.85 (17.97)

Table 2

Descriptive Statistics for Children with Poor or Higher Fluency, by Treatment (Mean, (SD))

	Poor Fluency < 50 WPM		Higher Fluency > 55 WPM	
December	DEV (n = 9)	CM (n = 8)	DEV (n = 6)	CM (n = 8)
PPVT	88.10 (18.36)	85.88 (17.03)	93.20 (11.56)	98.25 (11.45)
Segmenting	11.00 (5.06)	10.75 (3.37)	14.00 (3.81)	17.38 (5.07)
Word Identification Raw	40.50 (8.33)	38.25 (5.34)	51.00 (9.30)	52.63 (7.25)
Word Attack Raw	8.30 (3.50)	6.25 (3.75)	14.00 (6.21)	14.50 (6.14)
Passage Comp Raw	18.60 (3.31)	18.25 (4.68)	28.60 (6.88)	28.50 (4.63)
Word Identification SS	78.80 (7.84)	79.5 (6.59)	86.60 (2.07)	87.38 (2.07)
Word Attack SS	79.60 (1.90)	79.88 (4.42)	85.00 (3.81)	84.88 (3.27)
Passage Comp SS	80.10 (7.77)	82.00 (5.83)	87.80 (1.64)	87.75 (3.06)
Reading Fluency (Gr 2)	39.70 (7.66)	36.75 (7.11)	68.00 (9.80)	69.63 (8.19)
ARI Comprehension	1.68 (0.37)	1.59 (0.41)	2.82 (1.04)	2.38 (0.89)
February				
Word Identification Raw	45.75 (8.87)	41.88 (4.73)	54.00 (10.70)	57.13 (8.79)
Word Identification SS	82.40 (6.95)	83.38 (8.05)	90.40 (3.29)	91.75 (3.01)
Reading Fluency (Gr 2)	60.00 (14.03)	45.38 (9.62)	97.80 (16.24)	90.75 (8.33)
Reading Fluency (Gr 3)	43.70 (14.72)	37.00 (12.07)	85.20 (27.22)	71.88 (25.65)
ARI Comprehension	2.47 (0.61)	1.99 (0.62)	3.70 (1.22)	3.21 (0.92)
May				
Segmenting	26.22 (3.48)	23.88 (4.26)	21.17 (3.77)	25.38 (2.62)
Word Identification Raw	54.5 (7.60)	47.50 (3.63)	61.00 (8.46)	62.88 (8.84)
Word Attack Raw	21.20 (7.02)	14.00 (1.93)	23.80 (6.22)	22.25 (7.01)
Passage Comp Raw	29.60 (6.77)	26.00 (4.23)	34.80 (7.09)	35.75 4.50)
Word Identification SS	89.33 (7.60)	85.25 (6.54)	91.18 (3.83)	94.25 (3.50)
Word Attack SS	94.33 (7.18)	87.50 (2.20)	93.67 (3.32)	95.13 (4.61)
Passage Comp SS	89.67 (8.43)	87.63 (5.66)	94.67 (2.78)	98.75 (4.74)
Reading Fluency (Gr 2)	71.11 (12.49)	46.88 (9.20)	104.50 (25.46)	96.75 (21.16)
Reading Fluency (Gr 4)	42.33 (16.82)	34.00 (12.86)	73.67 (33.40)	76.57 (19.21)
ARI Comprehension	3.51 (1.12)	2.74 (0.88)	4.12 (1.50)	4.39 (1.15)
PIAT Spelling SS	85.22 (8.11)	87.63 (7.27)	90.67 (4.83)	93.75 (6.41)

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